

Listing of Claims:

1. (Currently Amended) A driving device which supplies a current to a plurality of current driven optical elements to drive the optical elements, comprising ~~at least~~:

5 a driving current supply circuit which supplies a driving current to ~~said~~ each of the optical ~~element~~ elements for a predetermined period; and

10 a control voltage applying circuit which applies at least a charge voltage having a voltage value corresponding to a voltage to be applied to ~~said~~ each of the optical ~~element~~ elements using the driving current, before the driving current is supplied,

wherein the driving current supply circuit comprises:

a single constant current generating circuit which outputs a constant current having a predetermined current value;
and

15 a plurality of current storage circuits which sequentially receive and hold the constant current and output the driving current based on the constant current.

2. (Currently Amended) A driving device according to claim 1, wherein the driving current supplied to ~~said~~ each of the optical ~~element~~ elements has ~~the~~ a same current value with respect to ~~said~~ each of the optical ~~element~~ elements.

Claim 3 (Canceled).

4. (Currently Amended) A driving device according to claim 3 1, wherein the predetermined current value of the constant current ~~has a current value~~ is equal to a current value of the driving current.

5. (Currently Amended) A driving device according to claim 3 1, wherein the single constant current generating circuit comprises:

a control current generating circuit which generates a
5 control current having a predetermined current value; and

an output current generating circuit which generates an output current having a predetermined current ratio with respect to the control current, and which outputs the output current as the constant current.

6. (Currently Amended) A driving device according to claim 5, wherein the output current generating circuit comprises a current mirror circuit which ~~has~~ defines the predetermined current ratio.

7. (Currently Amended) A driving device according to claim 3 1, wherein:

each of the current storage ~~circuit~~ circuits comprises a pair of current storage sections arranged in parallel, and

5 the driving device further comprises a control section which, for each of the current storage circuits, alternately ~~and concurrently~~ performs: (i) an operation of causing a first one of the current storage sections to receive the constant current output from the constant current generating circuit and hold a
10 voltage component corresponding to a the current value of the constant current, and concurrently performing an operation of causing the other a second one of the current storage sections to output the driving current based on the basis of the a voltage component held in the other second current storage section; and
15 (ii) an operation of causing the second one of the current storage sections to receive the constant current output from the constant current generating circuit and hold the voltage component corresponding to the current value of the constant current, and concurrently performing an operation of causing the
20 first one of the current storage sections to output the driving current based on the voltage component held in the first current storage section.

8. (Currently Amended) A driving device according to claim 3 1, wherein each of the current storage ~~circuit~~ circuits comprises a voltage component holding section which receives the

constant current output from the constant current generating
5 circuit and holds a voltage component corresponding to ~~a~~ the
current value of the constant current.

9. (Original) A driving device according to claim 8,
wherein the voltage component holding section comprises a
capacitance element in which electric charge corresponding to the
constant current is written.

10. (Currently Amended) A driving device according to
claim 9, wherein:

the voltage component holding section includes a field
effect transistor which causes the constant current to flow
5 between a source and a drain thereof, and

the capacitance element includes at least a parasitic
capacitance between the source and a gate of the field effect
transistor, in which a voltage applied between the source and
gate of the field effect transistor and corresponding to the
10 constant current is written.

11. (Currently Amended) A driving device according to
claim ~~3~~ 1, wherein the driving current supply circuit ~~further~~
~~comprises~~ includes a plurality of chips, each of which includes a
plurality of the current storage circuits, and wherein each of

5 the plurality of chips comprises a single input current storage
circuit which is provided between the constant current
generating circuit and said plurality of current storage
circuits, receives the constant current output from the constant
current generating circuit, holds a voltage component
10 corresponding to ~~a~~ the current value of the constant current, and
supplies a current based on the voltage component to said
plurality of current storage circuits.

12. (Original) A driving device according to claim 11,
wherein the input current storage circuit comprises a capacitance
element in which electric charges corresponding to the constant
current are written as the voltage component.

13. (Currently Amended) A driving device according to
claim 12, wherein is

the input current storage circuit comprises a field effect
transistor which causes the constant current to flow between a
5 source and a drain thereof, and

the capacitance element includes at least a parasitic
capacitance between the source and a gate of the field effect
transistor, in which a voltage applied between the source and
gate of the field effect transistor and corresponding to the
10 constant current is written.

14. (Currently Amended) A driving device according to claim 1, wherein the control voltage applying circuit ~~further~~ comprises means for applying a discharge voltage having a voltage value for causing ~~said~~ each of said optical ~~element~~ elements to perform a discharging operation, after the driving current is supplied ~~to said each optical element~~.

15. (Currently Amended) A driving device according to claim 1, further comprising a pulse width control circuit which controls a pulse width of the driving current to be applied to ~~said~~ each of said optical ~~element~~ elements.

16. (Original) A driving device according to claim 15, wherein the pulse width control circuit controls the pulse width of the driving current in accordance with a luminance level component of a display signal.

17. (Currently Amended) A display apparatus which displays image information by supplying a driving current corresponding to a display signal to each of a plurality of current driven display elements ~~of a display panel~~, comprising:

a display panel including a plurality of signal lines and a plurality of scanning lines intersecting at right angles, said

plurality of display elements being respectively arranged near intersections of the signal lines and the scanning lines;

10 a scanning control circuit which sequentially scans the scanning lines to sequentially set the display elements connected to the respective scanning lines in a selected state; and

15 a signal control circuit including at least a driving current supply circuit which supplies a respective driving current to each of said ~~each~~ signal ~~line~~ lines for a predetermined period, and a control voltage applying circuit which applies $[[,]]$ to each of said ~~each~~ signal ~~line~~, lines a charge voltage having a voltage value based on a voltage applied to each of said ~~each~~ display ~~element~~ elements upon application of the driving current, before supply of the driving current,

20 wherein the driving current supply circuit in the signal control circuit comprises:

a single constant current generating circuit which outputs a constant current having a predetermined current value;
and

25 a plurality of current storage circuits which are provided in correspondence with said plurality of signal lines, which sequentially receive and hold the constant current, and which simultaneously output the driving currents to said plurality of signal lines based on the constant current.

18. (Currently Amended) A display apparatus according to claim 17, wherein the respective driving ~~current~~ currents supplied to each of said ~~each~~ signal ~~line~~ lines of the display panel ~~has the~~ have a same current value for each of said ~~each~~ signal ~~line~~ lines.

19. (Currently Amended) A display apparatus according to claim 17, wherein the signal control circuit comprises ~~at least~~ a control section which performs supply of the driving ~~current~~ currents by the driving current supply circuit and application of the charge ~~voltage~~ voltages by the control voltage applying circuit in accordance with a timing at which the scanning control circuit sets the display ~~element~~ elements in a selected state.

20. (Currently Amended) A display apparatus according to claim 17, wherein the voltage value of the charge voltage ~~has at least a voltage value which~~ is higher than a threshold voltage for each of said ~~each~~ display ~~element~~ elements of the display panel and smaller than a maximum value of a voltage value applied to each of said ~~each~~ display ~~element~~ elements when the driving current is supplied to each of said ~~each~~ display ~~element~~ elements through said ~~each~~ signal ~~line~~ lines.

21. (Currently Amended) A display apparatus according to claim 20, wherein the voltage value of the charge voltage ~~has a voltage value~~ is equal to an average value of voltage values applied to the respective display elements when the driving
5 current is supplied to the respective display elements through the respective signal lines.

22. (Currently Amended) A display apparatus according to claim 17, wherein the display ~~element comprises~~ elements comprise optical elements.

23. (Currently Amended) A display apparatus according to claim 22, wherein each of the optical elements comprises an organic electroluminescence element, ~~the organic electroluminescence element having~~ which has an anode electrode
5 connected to one of the signal ~~line~~ lines, and a cathode electrode connected to one of the scanning ~~line~~ lines.

Claim 24 (Canceled).

25. (Currently Amended) A display apparatus according to claim ~~24~~ 17, wherein the current value of the constant current ~~has a current value~~ is equal to ~~that~~ a current value of the driving current.

26. (Currently Amended) display apparatus according to claim ~~24~~ 17, wherein the constant current generating circuit comprises:

5 a control current generating circuit which generates a control current having a predetermined current value; and

an output current generating circuit which generates an output current having a predetermined current ratio with respect to the control current, and which outputs the output current as the constant current.

27. (Currently Amended) A display apparatus according to claim 26, wherein the output current generating circuit comprises a current mirror circuit ~~having~~ which defines the predetermined current ratio.

28. (Currently Amended) A display apparatus according to claim ~~24~~ 17, wherein:

each of said ~~each~~ current storage ~~circuit~~ circuits comprises a pair of current storage sections arranged in parallel, and

5 the driving device further comprises a control section which, for each of the current storage circuits, alternately ~~and concurrently~~ performs: (i) an operation of causing a first one of the current storage sections to receive the constant current output from the constant current generating circuit and hold a

10 voltage component corresponding to ~~a~~ the current value of the
constant current, and concurrently performing an operation of
causing ~~the other~~ a second one of the current storage sections to
output the driving current based on ~~the basis of the~~ a voltage
component held in the ~~other~~ second current storage section; and
15 (ii) an operation of causing the second one of the current
storage sections to receive the constant current output from the
constant current generating circuit and hold the voltage
component corresponding to the current value of the constant
current, and concurrently performing an operation of causing the
20 first one of the current storage sections to output the driving
current based on the voltage component held in the first current
storage section.

29. (Currently Amended) A display apparatus according to
claim ~~24~~ 17, wherein each of the current storage ~~circuit~~
circuits comprises a voltage component holding section which
receives the constant current output from the constant current
5 generating circuit and holds a voltage component corresponding to
~~a~~ the current value of the constant current.

30. (Original) A display apparatus according to claim 29,
wherein the voltage component holding section comprises a

capacitance element in which electric charge corresponding to the constant current is written.

31. (Currently Amended) A display apparatus according to claim 30, wherein:

the voltage component holding section comprises a field effect transistor which causes the constant current to flow
5 between a source and a drain thereof, and

the capacitance element includes at least a parasitic capacitance between the source and a gate of the field effect transistor, in which a voltage applied between the source and gate of the field effect transistor and corresponding to the
10 constant current is written.

32. (Currently Amended) A display apparatus according to claim ~~24~~ 17, wherein the driving current supply circuit ~~further~~ includes a plurality of chips, each of which includes a plurality of the current storage circuits, and wherein each of the
5 plurality of chips comprises a single input current storage circuit which: is provided between the constant current generating circuit and said plurality of current storage circuits, receives the constant current output from the constant current generating circuit, holds a voltage component
10 corresponding to ~~a~~ the current value of the constant current, and

supplies a current based on the voltage component to said plurality of current storage circuits.

33. (Original) A display apparatus according to claim 32, wherein the input current storage circuit comprises a capacitance element in which electric charges corresponding to the constant current are written as the voltage component.

34. (Currently Amended) A display apparatus according to claim 33, wherein:

the input current storage circuit comprises a field effect transistor which causes the constant current to flow between a source and a drain thereof, and

the capacitance element includes at least a parasitic capacitance between the source and a gate of the field effect transistor, in which a voltage applied between the source and gate of the field effect transistor and corresponding to the constant current is written.

35. (Currently Amended) A display apparatus according to claim ~~24~~ 17, wherein ~~at least said~~ the plurality of current storage circuits in the signal control circuit are formed on at least one semiconductor chip.

36. (Currently Amended) A display apparatus according to claim 35, wherein the constant current generating circuit is formed on a semiconductor chip different from the at least one semiconductor chip on which the plurality of current storage circuits are formed.

37. (Currently Amended) A display apparatus according to claim 35, wherein the constant current generating circuit is formed ~~in~~ on a same the semiconductor chip as the plurality of current storage circuits.

38. (Currently Amended) A display apparatus according to claim 17, wherein the control voltage applying circuit in the signal control circuit ~~further~~ comprises means for applying, to each of said ~~each~~ signal ~~line~~ lines, a discharge voltage having a voltage value that causes each of said ~~each~~ display ~~element~~ elements to perform a discharging operation, after the driving current is supplied to each of said ~~each~~ signal ~~line~~ lines.

39. (Currently Amended) A display apparatus according to claim 38, wherein the voltage value of the discharge voltage ~~has a voltage value which~~ does not exceed a threshold voltage of the display ~~element~~ elements.

40. (Currently Amended) A display apparatus according to claim 17, wherein the signal control circuit further comprises a pulse width control circuit which controls a pulse width of the driving current applied to each of said ~~each~~ signal ~~line~~ lines.

41. (Original) A display apparatus according to claim 40, wherein the pulse width control circuit controls the pulse width of the driving current in accordance with a luminance level component of a display signal.

42. (Currently Amended) A display apparatus according to claim 17, further comprising means for inhibiting a current from flowing in the display ~~element~~ elements when the charge voltage is applied from the control voltage applying circuit in the
5 signal control circuit to the display ~~element~~ elements.

43. (Currently Amended) A display apparatus according to claim 17, wherein the scanning control circuit comprises means for applying, to all of the scanning lines, a charge control voltage having a voltage value which inhibits a current from
5 flowing in the display ~~element~~ elements, during a period in which the charge voltage is applied from the control voltage applying circuit in the signal control circuit to each of said ~~each~~ signal ~~line~~ lines.

44. (Currently Amended) A display apparatus according to claim 43, wherein the voltage value of the charge control voltage ~~has a voltage value~~ is higher than a voltage obtained by subtracting a threshold voltage of the display ~~element~~ elements from the charge voltage.

45. (Currently Amended) A display apparatus according to claim 17, wherein the scanning control circuit comprises means for sequentially applying $[[,]]$ to each of the scanning ~~line to~~
4 ~~which the display element is connected~~ lines, a driving control voltage having a voltage value which causes the driving current to flow in the display element, wherein during each time said driving control voltage is applied, ~~during a period in which the~~
driving current is supplied from the driving current supply
9 circuit of the signal control circuit to each of said ~~each~~ signal ~~line~~ lines.

46. (Original) A display apparatus according to claim 45, wherein the driving control voltage is set to ground potential.

47. (Currently Amended) A driving method for a driving device which supplies a current to a plurality of current driven optical elements to drive the optical elements, comprising:

supplying a driving current to each of said ~~each~~ optical
5 ~~element~~ elements for a predetermined period; and

applying a charge voltage having a voltage value based on a
voltage to be applied to each of said ~~each~~ optical ~~element~~
elements by application of the driving current, before the
driving current is supplied,

10 wherein supplying the driving current comprises:

generating a constant current having a predetermined
current value using a single constant current generating circuit,
and outputting the constant current to a plurality of current
storage circuits;

15 sequentially receiving and holding the constant current
in each of the current storage circuits; and

applying the driving current from each of the current
storage circuits to the optical elements based on the constant
current held in each of the current storage circuits.

48. (Currently Amended) A driving method for a driving
device according to claim 47, further comprising applying, to the
optical ~~element~~ elements, a discharge voltage having a voltage
value which causes each of said ~~each~~ optical ~~element~~ elements to
5 perform a discharging operation, after the driving current is
supplied ~~to said each optical element~~.

Claim 49 (Canceled).

50. (Currently Amended) A driving method for a driving device according to claim ~~49~~ 47, wherein said holding the driving current in each of said ~~each~~ current storage ~~circuit~~ circuits and said applying the driving current to said ~~each~~ optical ~~element~~ elements are concurrently executed.

51. (Currently Amended) A driving method for a driving device according to claim ~~49~~ 47, wherein a plurality of chips are provided, each of which includes a plurality of the current storage circuits, and the outputting the constant current to each of said ~~each~~ current storage ~~circuit~~ circuits comprises, for each of the plurality of chips:

receiving and holding, in a single input current storage circuit, a voltage component corresponding to ~~a~~ the current value of the constant current output from the constant current generating circuit; and

supplying, to said plurality of current storage circuits, a current based on the voltage component held in the input current storage circuit.

52. (New) A driving device for a display panel, wherein the display panel includes: (i) a plurality of scanning lines

extending in a row direction, (ii) a plurality of signal lines
extending in a column direction which intersect the scanning
5 lines, and (iii) a plurality of current-driven optical elements,
each of which is positioned at a respective intersection of one of
the scanning lines with one of the signal lines, with a first end
of the current-driven optical element connected to the scanning
line at the intersection and a second end of the current-driven
10 optical element connected to the signal line at the intersection,
said driving device comprising:

a driving current supply circuit which supplies respective
driving currents through the signal lines for respective
predetermined periods during a period in which a potential of a
15 given one of the scanning lines is set such that the driving
currents flow through the optical elements connected to the given
scanning line, to drive the optical elements connected to the
given scanning line; and

a control voltage applying circuit which, before the driving
20 currents corresponding to the given scanning line are supplied
and during a period in which the potential of the scanning lines
is set such that no drive current flows through the optical
elements, applies a charge voltage to the optical elements, said
charge voltage having a voltage value corresponding to a voltage
25 to be applied to each of the optical elements using the driving
currents.

53. (New) A display device for displaying image information via a plurality of current-driven display elements, said display device comprising:

5 a display panel, which includes: (i) a plurality of scanning lines extending in a row direction, (ii) a plurality of signal lines extending in a column direction which intersect the scanning lines, and (iii) the plurality of current-driven display elements, each of which is positioned at a respective intersection of one of the scanning lines with one of the signal lines, with a
10 first end of the display element connected to the scanning line at the intersection and a second end of the display element connected to the signal line at the intersection;

a scanning control circuit which sequentially scans the scanning lines to sequentially set a potential of each one of the
15 scanning lines to a given potential to set the optical elements connected to the one of the scanning lines in a selected state;

a driving current supply circuit which supplies respective driving currents through the signal lines for respective predetermined periods during a period in which the optical
20 elements of a given scanning line are set in the selected state, to drive the optical elements set in the selected state, wherein said given potential is a potential such that the driving currents flow through the optical elements set in the selected state; and

25 a control voltage applying circuit which, before the driving
currents corresponding to the given scanning line are supplied
and during a period in which the potential of the scanning lines
is set such that no drive current flows through the optical
elements, applies a charge voltage to the optical elements, said
30 charge voltage having a voltage value corresponding to a voltage
to be applied to each of the optical elements using the driving
currents.

54. (New) A driving method for a driving device for a
display panel, wherein the display panel includes: (i) a
plurality of scanning lines extending in a row direction, (ii) a
plurality of signal lines extending in a column direction which
5 intersect the scanning lines, and (iii) a plurality of current-
driven optical elements, each of which is positioned at a respective
intersection of one of the scanning lines with one of the signal
lines, with a first end of the current-driven optical element
connected to the scanning line at the intersection and a second
10 end of the current-driven optical element connected to the signal
line at the intersection, said driving method comprising:

supplying respective driving currents from the driving
device through the signal lines for respective predetermined
periods during a period in which a potential of a given one of
15 the scanning lines is set such that the driving currents flow

through the optical elements connected to the given scanning line, to drive the optical elements connected to the given scanning line; and

20 applying a charge voltage to the optical elements, before
the driving currents corresponding to the given scanning line are
supplied and during a period in which the potential of the
scanning lines is set such that no drive current flows through
the optical elements, said charge voltage having a voltage value
corresponding to a voltage to be applied to each of the optical
25 elements using the driving currents.